

REMARKS

The Examiner has rejected claims 15, 19-22, 31, and 32 under 35 U.S.C. §112, First Paragraph. The Examiner has rejected claim 13 under 35 U.S.C. §112, Second Paragraph. Furthermore, the Examiner has rejected claims 1-3, 5-14, 16-18, and 23-30 under 35 U.S.C. §103. In view of the above amendments to the specification, the drawings and the claims, the Applicants respectfully request the Examiner to reconsider the pending rejections. After entry of this amendment, claims 1-12 and 14-32 will remain pending in the current application.

The Drawing and Specification Amendments

Figures 1, 3, 5, and 6 have been amended to clarify features of the drawings and to correct minor errors in labeling.

Figures 1 and 3 were amended to correct a lead line as to where reference numeral "1-6" and or "1-9" should point. Support for the amendment of Figure 1 can be found on page 7, lines 10-19 of the Applicant's Specification. Support for the amendment of Figure 3 can be found on page 9, lines 4-5 of the Applicant's Specification. Figure 5 was amended to correct a lead line as to where the reference numeral "1-10" pointed. Support for this amendment can be found on page 12, line 15 of the Applicant's Specification. Figure 6 has been amended to correct a mislabeling and to correctly label features of the drawing. Support for these amendments can be found on page 14, lines 13-18 and page 15, line 1 of the Applicant's Specification. No new matter has been added to the Drawings.

The Specification has been amended to correct a small typographical error. No new matter has been added to the Specification.

Additional Claim Amendments

Claim 4 was amended to incorporate some of its subject matter into independent claim 1. Claim 9 was amended to change "clock units" to "clock generators." This amendment was made so that the language of claim 9 corresponds with the language of the claims from which it depends.

The Applicant would like to thank the Examiner for indicating that claim 4 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Applicant believes that the amendment to incorporate some of the subject matter limitations from claim 4 into claim 1 would be sufficient to overcome the pending rejections.

The Section 112 Rejections

The Examiner has rejected claims 15, 19-22, 31, and 32 under 35 U.S.C. §112, First Paragraph. The Applicant has amended claims 15, 19-22, 31, and 32. The Applicant respectfully submits that the amendments overcome the rejections under 35 U.S.C. §112, First Paragraph.

The Examiner rejected claim 15 because, "the applicant does not disclose the claimed client side O/E and E/O (claimed first O/E and second E/O) that convert to and from a plurality of client wavelengths." The Applicant has amended claim 15 so that "said first O/E converter converts from a predetermined wavelength optical signal to an electronic signal." The Applicant has further amended claim 15 so that "said second E/O converter converts from an electronic signal to a predetermined wavelength optical signal." Support for this amendment can be found on page 7, lines 20-22 of the Applicant's Specification. In newly amended claim 15, the first O/E and the second E/O now convert to and from a predetermined wavelength optical signal. The Applicant

respectfully submits that this amendment overcomes the rejection under 35 U.S.C. §112, First Paragraph and requests that the rejection be removed.

The Examiner rejected claims 19 and 20 because, “the applicant does not disclose an optical switch matrix that separates and combines wavelengths.” The Applicant has amended claim 19 so that the “optical switch matrix [is] located between said optical wavelength separator and said optical wavelength combiner.” Support for this amendment can be found on page 15, lines 9-24 of the Applicant’s Specification and in Figure 7. The Applicant has amended claim 20 removing language associated with the optical switch matrix. Support for this amendment can be found on page 16, lines 17-22 of the Applicant’s Specification and in Figures 7 and 8. Claim 19 now has the optical switch matrix that is located between the separator and combiner. Therefore, claim 19 does not require that the optical switch matrix both combine and separate wavelengths. Newly amended claim 20 makes no mention of the optical switch matrix. The Applicant respectfully submits that newly amended claims 19 and 20 overcome the rejections under 35 U.S.C. §112, First Paragraph and requests that the rejections be removed.

The Examiner rejected claim 21 because, “the applicant does not disclose the claimed optical selector that separates wavelengths.” The Office Action indicates that “the applicant discloses wavelengths being separated by a demultiplexer (fig. 6, element 7-6) or add/drop module (fig. 6, element 7-12) and then sent to an optical selector (fig. 6, element 7-8) that selects between already separated wavelengths.” The Applicant has amended claim 21 by changing the word “selector” to “demultiplexer.” As noted in the Office Action, the demultiplexer separates wavelengths and therefore acts as a optical wavelength separator. The Applicant respectfully submits that newly amended claim 21 overcomes the rejection under 35 U.S.C. §112, First Paragraph and requests that the rejection be removed.

The Examiner rejected claim 22 because, "the applicant does not disclose the claimed optical selector tha[t] combines wavelengths." The Applicant has amended claim 22 by changing the word "selector" to "multiplexer." The multiplexer (1-13-1) in the Applicant's invention multiplexes multiple wavelengths and therefore acts as a combiner. See page 8, lines 7-10 of the Applicant's specification. The Applicant respectfully submits that newly amended claim 22 overcomes the rejection under 35 U.S.C. §112, First Paragraph and requests that the rejection be removed.

The Examiner rejected claims 31 and 32 because, "the applicant does not disclose multiplexing a plurality of wavelengths and determining the transmission quality for a combination of the wavelengths." The Applicant has amended claim 31 so that it now states in part, "demultiplexing the optical signal received from the optical transmission lines to optical signals at a plurality of wavelength including the first wavelength; and selecting at least a part of the wavelengths that includes the first wavelength among the plurality of the demultiplexed optical signals in order to determine transmission quality." Claim 31 now requires demultiplexing a plurality of wavelengths in order to determine transmission quality. Support for this amendment can be found on page 8, lines 13-20. Therefore, claim 31 now meets the requirements of 35 U.S.C. §112, First Paragraph. Claim 32 has been amended to further clarify the subject matter limitations and also meets the requirements of 35 U.S.C. §112, First Paragraph. Since claim 32, depends from claim 31, claim 32 now meets the enabling requirements. The Applicant respectfully submits that newly amended claims 31 and 32 overcome the rejections under 35 U.S.C. §112, First Paragraph and requests that the rejection be removed.

The Examiner has rejected claim 13 under 35 U.S.C. §112, Second Paragraph. The Applicant has canceled claim 13. The Applicant respectfully submits that the rejection under 35 U.S.C. §112, Second Paragraph is now moot.

The Section 103 Rejections

Claims 1, 5, 6, 10, 11, 14, 16-18, and 23-30 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Published Patent Application No. 2003/0147585 (hereinafter "Kikuchi") in view of U.S. Patent No. 6,480,308 (hereinafter "Yoshida"). The Applicant respectfully submits that neither Kikuchi nor Yoshida discloses or teaches every limitation of newly amended independent claims 1, 6, 16, and 27.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 265 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Independent claim 1 has been amended to now include the limitation of "a test signal generator circuit ultimately connected to said optical signal input unit for generating a test signal for testing optical transmission quality, said test signal generator circuit further comprising a clock generator for generating a clock signal indicative of a bit rate to be added to the test signal." Claim 1 has been further amended to include the limitation of "a test comparison circuit connected to said extraction circuit for determining the optical transmission quality based on the test signal extracted by said extraction circuit, said test comparison circuit further comprising a clock extraction circuit for extracting the clock signal from the test signal that is received at the receive end in order to synchronize with the bit rate of the selected test signal." Support for these amendments can be found on page 10, lines 1-10 and page 9, lines 12-24 of the Applicant's Specification.

Kikuchi discloses having an optical receiver for receiving high-speed optical information signals and converting the high-speed optical information signals to electrical signals. Kikuchi further discloses a fault recovery mechanism and intra-site circuit error correction/monitoring mechanism. See paragraphs 0121 and 0122. As referred by Kikuchi, the fault recovery mechanism in FIG. 18 is identical to that is shown with respect to FIG. 17. As described in paragraphs 118 and 119, the "fault situation is detected from header information 238." As the Office Action notes, Kikuchi does not disclose utilizing "a test signal" in order to determine optical transmission quality. Kikuchi further does not disclose newly amended features of having "a clock generator" or "a clock extraction circuit."

Yoshida discloses an optical communication apparatus. Yoshida further discloses a power control circuit unit 2 provided with a timer circuit 18, a selector 17, a control circuit 10, and a test pattern generating circuit 16. See col. 8, lines 33-35. A test pattern signal s16a is outputted from the test pattern generating circuit 16 and is transmitted to the opposed first optical communication apparatus 20 via the selector 17 and via the selector 1. See col. 9, lines 1-4. The test pattern signal s16a is a test signal having a specific signal pattern. See col. 9, line 5. Test pattern signal s9a is used for determining light emitting power. See col. 8, lines 55-59. When there is a discrepancy between the test signal and a transmitted signal, the system adjusts the intensity of the optical signal. See Abstract; also see col. 10, line 42-col. 11, line 7.

Yoshida fails to disclose, teach or suggest as to how the test pattern signals S16a and S9a are generated or as to what the components of the signals are. The lack of the above disclosures is critical in overcoming the currently pending obviousness rejections. Yoshida fails to disclose, teach or suggest a test signal generator circuit that includes "a clock generator for generating a clock signal indicative of a bit rate to be added to the test signal." Yoshida also fails to disclose, teach or suggest "a clock extraction circuit for extracting a clock signal from a test signal that is received at the receive end in order to

synchronize with the bit rate of the selected test signal.” Therefore, the Applicant submits that not every limitation of claim 1 is taught or suggested by Kikuchi and Yoshida alone or in combination. The Applicant respectfully requests that the rejection of claim 1 should be withdrawn. The Applicant further submits that claims 2-3 and 5 are allowable by virtue of their dependency upon allowable claim 1. Dependent claim 4 has already been indicated as allowable.

Independent claim 6 has been amended to now include the limitation of “a signal testing unit connected to said first O/E converter for selectively adding an electronic test signal to the electronic signal so as to generate a test-signal-contained electronic signal, said test signal generator circuit further comprising a clock generator for generating a clock signal indicative of a bit rate to be added to the test-signal-contained electronic signal.” Claim 6 has been further amended to include the limitation of “said signal testing unit further comprising a clock extraction circuit for extracting the clock signal from the test-signal-contained electronic test signal in order to synchronize with the bit rate of the electronic test signal.” Support for these amendments can be found on page 10, lines 1-10 and page 9, lines 12-24 of the Applicant’s Specification.

Neither Kikuchi nor Yoshida discloses or suggests “a test signal generator circuit further comprising a clock generator for generating a clock signal indicative of a bit rate to be added to the test-signal-contained electronic signal” as explicitly recited in newly amended independent claim 6. Neither Kikuchi nor Yoshida discloses or suggests a “signal testing unit further comprising a clock extraction circuit for extracting the clock signal from the test-signal-contained electronic test signal in order to synchronize with the bit rate of the electronic test signal” as explicitly recited in newly amended independent claim 6.

As discussed above with respect to the section 103 rejection of newly amended independent claim 1, neither Kikuchi nor Yoshida discloses, teaches or suggests a clock

signal indicative of a bit rate or a clock extraction circuit for extracting the clock signal from an electronic test signal in order to synchronize with the bit rate. Therefore, the Applicant respectfully submits that not every limitation of claim 6 is taught or suggested by Kikuchi and Yoshida alone or in combination. The Applicant respectfully submits that the rejection of claim 6 should be withdrawn. The Applicant further submits that claims 7-12 and 14-15 are allowable by virtue of their dependency upon allowable claim 6.

Independent claim 16 has been amended to now include the limitation of "said quality testing unit further comprising; a test signal generator circuit for generating a test signal for testing optical network transmission line quality; a clock generator connected to said test signal generator circuit for generating a clock signal indicative of a bit rate to be added to the test signal from said test signal generator circuit; a test comparison circuit for determining the optical network transmission line quality based on the test signal received from other nodes; and a clock extraction circuit for extracting the clock signal from the separated test signal in order to synchronize the bit rate of the separated test signal." Support for these amendments can be found on page 10, lines 1-10 and page 9, lines 12-24 of the Applicant's Specification.

Neither Kikuchi nor Yoshida discloses or suggests "a clock generator connected to said test signal generator circuit for generating a clock signal indicative of a bit rate to be added to the test signal from said test signal generator circuit " as explicitly recited in newly amended independent claim 16. Neither Kikuchi nor Yoshida discloses or suggests a "clock extraction circuit for extracting the clock signal from the separated test signal in order to synchronize the bit rate of the separated test signal" as explicitly recited in newly amended independent claim 16. Therefore, the Applicant submits that not every limitation of claim 16 is taught or suggested by Kikuchi and Yoshida alone or in combination. The Applicant respectfully submits that the rejection of claim 16 should be

withdrawn. The Applicant further submits that claims 17-26 are allowable by virtue of their dependency upon allowable claim 16.

Independent claim 27 has been amended to now include the limitation of “generating a test signal for testing optical transmission line quality; specifying a bit rate of the test signal by adding a clock signal to the test signal.” Independent claim 27 has been further amended to now include the limitation of “extracting the clock signal from the test signal; synchronizing the bit rate of the test signal based upon the clock signal.” Support for these amendments can be found on page 10, lines 1-10 and page 9, lines 12-24 of the Applicant’s Specification.

Neither Kikuchi nor Yoshida discloses or suggests “generating a test signal for testing optical transmission line quality; specifying a bit rate of the test signal by adding a clock signal to the test signal.” Neither Kikuchi nor Yoshida discloses or suggests “extracting the clock signal from the test signal; synchronizing the bit rate of the test signal based upon the clock signal.” Therefore, the Applicant submits that not every limitation of claim 21 is taught or suggested by either Kikuchi or Yoshida alone or in combination. The Applicant respectfully submits that the rejection of claim 21 should be withdrawn. The Applicant further submits that claims 28-32 are allowable by virtue of their dependency upon allowable claim 27.

The Applicant further submits that U.S. Patent No. 5,235,645 (hereinafter “Stocker”) and U.S. Patent No. 5,392,289 (hereinafter “Varian”) also do not disclose or teach a clock signal indicative of a bit rate or a clock extraction circuit for extracting the clock signal from a test signal in order to synchronize with the bit rate. Although Stocker discloses using a clock signal, Stocker is not an optical system, and the clock signal is for use with a scrambler system. Stocker discloses an improved scrambling and descrambling circuit for a compressed video data signal prior to RF transmission of the signal. See col. 2, lines 30-34. Stocker’s objective is to prevent long streams of ones or

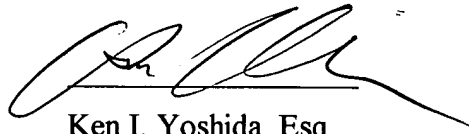
zeros. See col. 1, lines 45-49. Furthermore, the clock signal is not extracted from a test signal. Thus, there is no clock extraction circuit. Stocker's clock signal is to provide timing pulses to the components of the scrambler. See col. 2, lines 44-45.

Varian discloses measuring an error rate and using a sync word clock CLK2. Varian does not disclose or suggest an optical system or a clock extraction circuit for extracting the clock signal from a test signal. Furthermore, Varian does not disclose or suggest the clock signal generator being part of a test signal generator for testing optical transmission quality. Therefore, the Applicant further submits that none of the cited references, either separately or in combination, discloses, teaches or suggests all of the limitations of the newly amended independent claims.

Conclusion

In view of the above remarks and attachments, the Applicants respectfully submits that all of the pending claims are in condition for allowance and respectfully request a favorable Office Action so indicating.

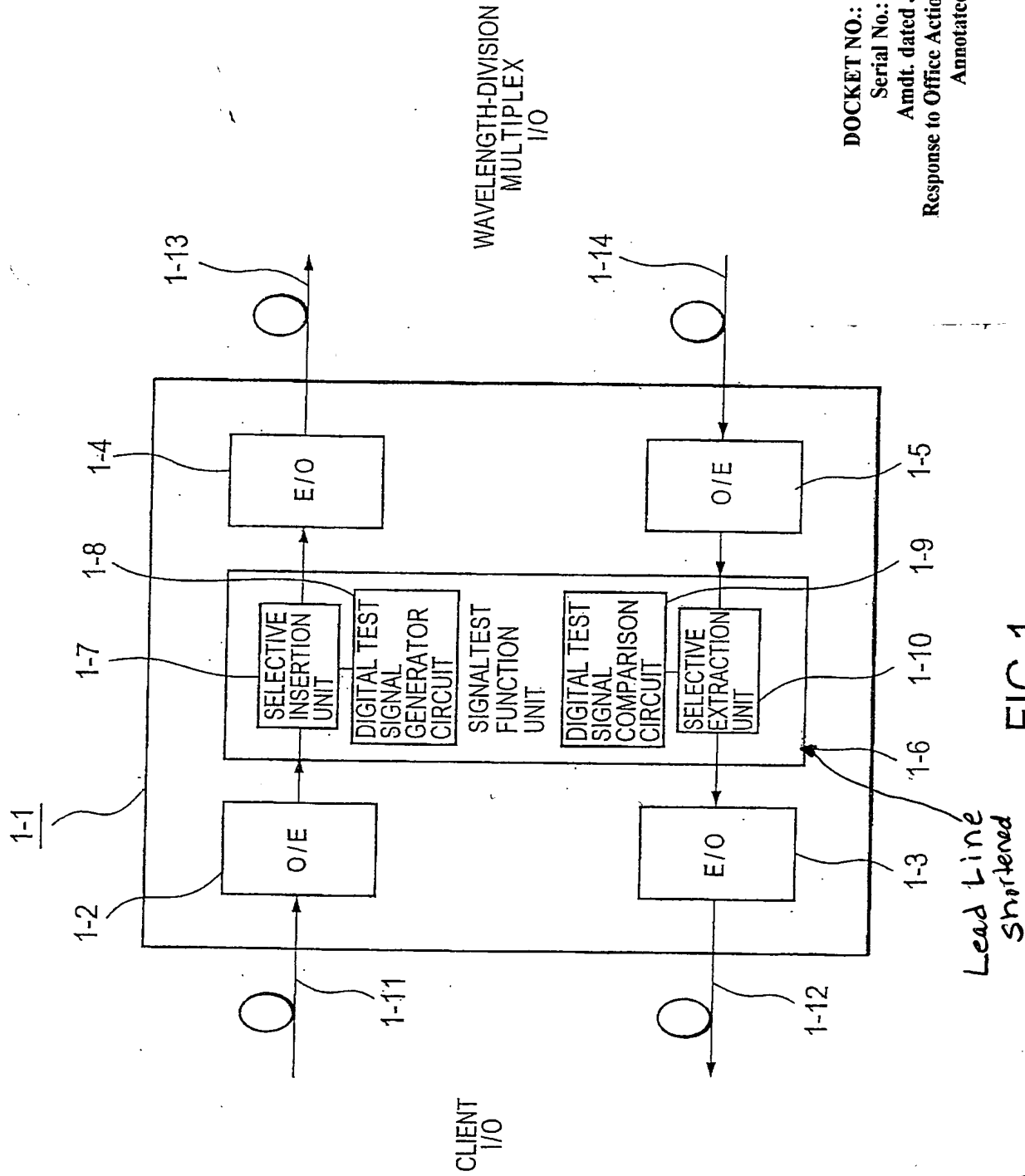
Respectfully submitted,



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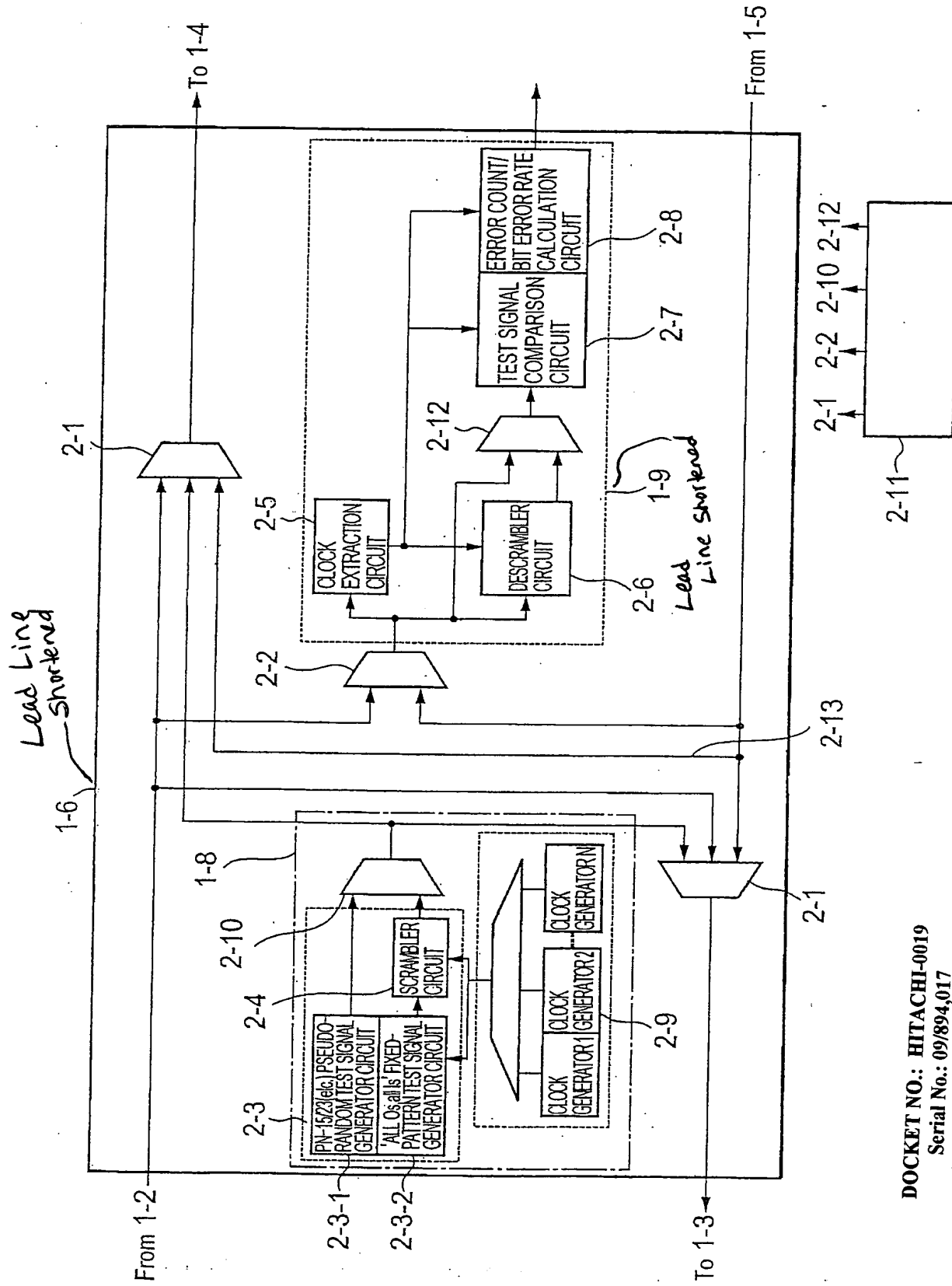


FIG.3

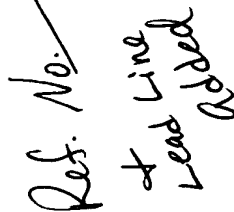
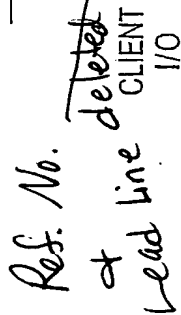
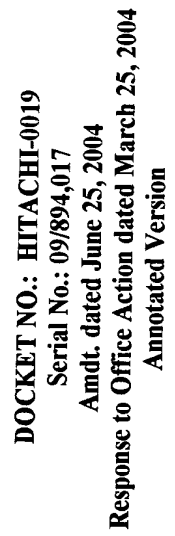


FIG. 5

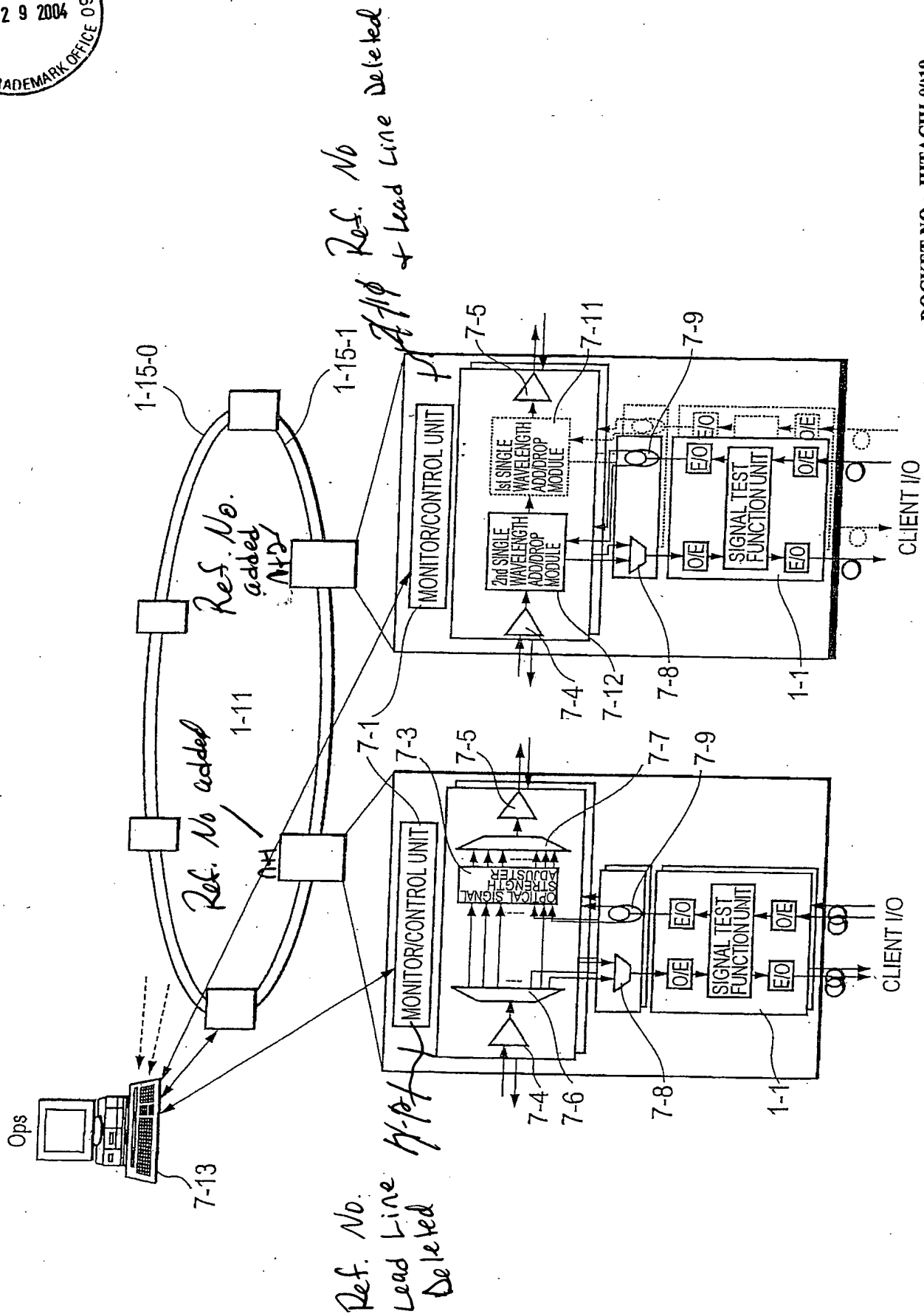


FIG.6